

CLAIMS

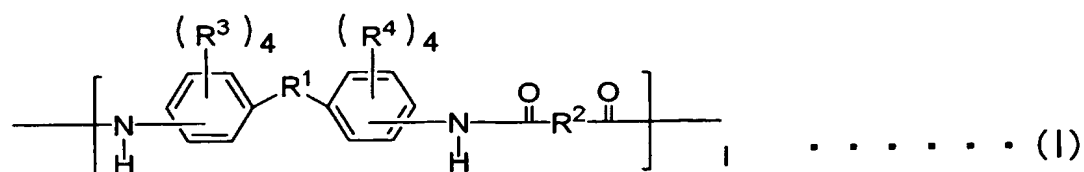
1. A polyamide having at least an alicyclic or aromatic group exhibiting a light transmittance of 80 % or more for all lights with wavelengths of from 450 nm to 700 nm.
2. The polyamide according to claim 1, wherein a light transmittance for a light with a wavelength of 400 nm of said polyamide is 60 % or more.
3. The polyamide according to claim 1 or 2, wherein a light transmittance for a light with a wavelength of 350 nm of said polyamide is 30 % or more.
4. The polyamide according to any of claims 1 to 3, wherein a glass transition temperature of said polyamide is 120°C or higher.
5. The polyamide according to any of claims 1 to 4, wherein a refractive index in at least one direction at a sodium D ray of said polyamide is 1.6 or more.
6. A polyamide comprising a structural unit represented by the following chemical formula (I), (II), (III) or (IV) and satisfying the following equations (1) to (3) when molar fractions of structural units represented by the following chemical formulae (I), (II), (III) and (IV) are referred to as "l", "m", "n" and "o", respectively:

$$50 < l + m + n \leq 100 \quad \cdot \cdot \cdot (1)$$

$$0 \leq l, m, n, o \leq 100 \quad \cdot \cdot \cdot (2)$$

$$0 \leq o \leq 50 \quad \cdot \cdot \cdot (3)$$

chemical formula (I):



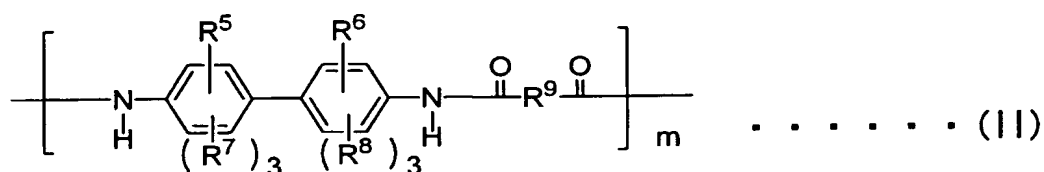
R¹: a group having at least a ring structure,

R²: an aromatic group,

R³: an arbitrary group, and

R⁴: an arbitrary group,

chemical formula (II):



R⁵: an electron-withdrawing group,

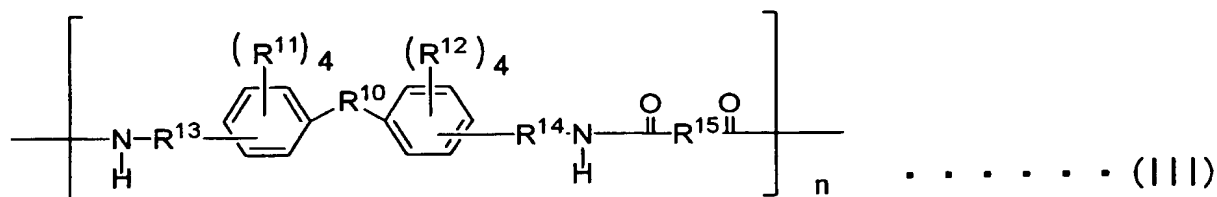
R⁶: an electron-withdrawing group,

R⁷: an arbitrary group,

R⁸: an arbitrary group, and

R⁹: an aromatic group,

chemical formula (III):



R¹⁰: a group containing Si, a group containing P, a group containing S, a halogenated hydrocarbon group or a group containing an ether linkage (where, structural units having these groups may be present together in a molecule.)

R¹¹: an arbitrary group,

R¹²: an arbitrary group,

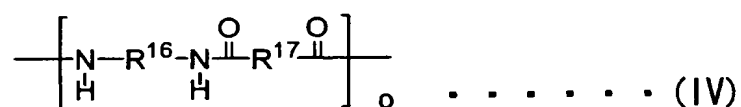
R¹³: linked directly or a group having a carbon number of 6 to 12 which has at

least a phenyl group as an inevitable component,

R¹⁴: linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component, and

R¹⁵: an aromatic group,

chemical formula (IV):



R¹⁶: an aromatic group, and

R¹⁷: an aromatic group.

7. The polyamide according to claim 6, wherein structural units represented by the chemical formulae (I) and (IV) are contained, and a molar fraction of a structural unit represented by the chemical formula (I) is 50 % or more.

8. The polyamide according to claim 6, wherein structural units represented by the chemical formulae (II) and (IV) are contained, and a molar fraction of a structural unit represented by the chemical formula (II) is 50 % or more.

9. The polyamide according to claim 6, wherein structural units represented by the chemical formulae (III) and (IV) are contained, and a molar fraction of a structural unit represented by the chemical formula (III) is 50 % or more.

10. A polyamide film comprising an alicyclic or aromatic polyamide exhibiting a light transmittance of 80 % or more for all lights with wavelengths of from 450 nm to 700 nm.

11. The polyamide film according to claim 10, wherein a thickness of said film is in a range of 0.01 to 1,000μm.

12. The polyamide film according to claim 11, wherein light transmittances of all lights with wavelengths of from 450 nm to 700 nm of said film are 80 % or more, and a thickness of said film is in a range of 1 μ m to 100 μ m.

13. The polyamide film according to any of claims 10 to 12, wherein a light transmittance for a light with a wavelength of 400 nm of said film is 60 % or more.

14. The polyamide film according to any of claims 10 to 13, wherein a Young's modulus in at least one direction of said film is 4 GPa or more.

15. The polyamide film according to any of claims 10 to 14, wherein a thermal shrinkage in at least one direction of said film at a heat treatment condition of 200°C and 30 minutes is 1 % or less.

16. The polyamide film according to any of claims 10 to 15, wherein a refractive index in at least one direction at a sodium D ray of said film is 1.6 or more.

17. The polyamide film according to any of claims 10 to 16, wherein a retardation of a light with a wavelength of 550 nm of said film is 0 nm or more and less than 10 nm.

18. The polyamide film according to any of claims 10 to 16, wherein a retardation of a light with a wavelength of 550 nm of said film is 10 nm or more and 2,000 nm or less.

19. The polyamide film according to any of claims 10 to 18, wherein, when a retardation of a light with a wavelength of 550 nm of said film is referred to as

R(550) and a retardation of a light with a wavelength of 450 nm of said film is referred to as R (450), said film satisfies $R(450) < R(550)$.

20. The polyamide film according to any of claims 10 to 19, wherein a birefringence of a light with a wavelength of 550 nm of said film is 0 or more and less than 0.1.

21. The polyamide film according to any of claims 10 to 19, wherein a birefringence of a light with a wavelength of 550 nm of said film is 0.1 or more and less than 0.5.

22. The polyamide film according to any of claims 10 to 21, wherein said polyamide is aromatic.

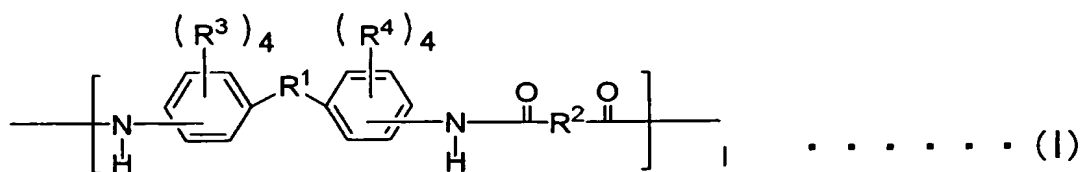
23. A polyamide film containing a polyamide which comprises a structural unit represented by the following chemical formula (I), (II), (III) or (IV) and satisfies the following equations (1) to (3) when molar fractions of structural units represented by the following chemical formulae (I), (II), (III) and (IV) are referred to as "l", "m", "n" and "o", respectively:

$$50 < l + m + n \leq 100 \quad \cdot \cdot \cdot (1)$$

$$0 \leq l, m, n, o \leq 100 \quad \cdot \cdot \cdot (2)$$

$$0 \leq o \leq 50 \quad \cdot \cdot \cdot (3)$$

chemical formula (I):



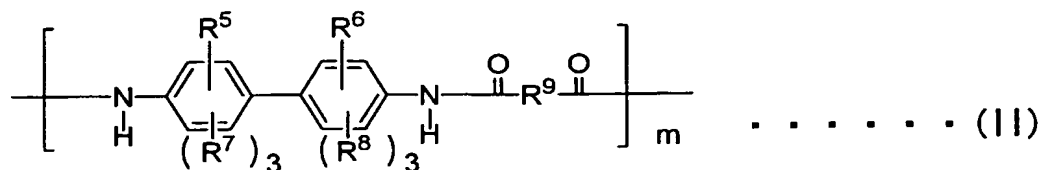
R^1 : a group having at least a ring structure,

R^2 : an aromatic group,

R^3 : an arbitrary group, and

R^4 : an arbitrary group,

chemical formula (II):



R^5 : an electron-withdrawing group,

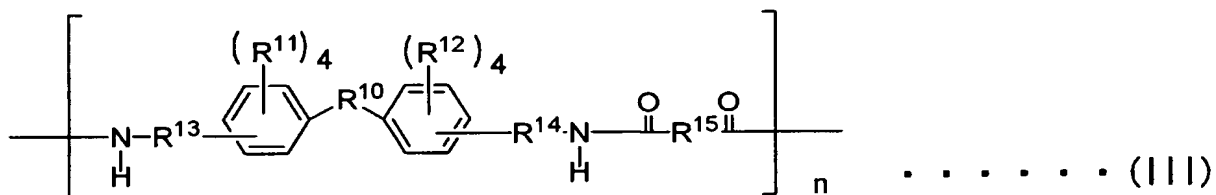
R^6 : an electron-withdrawing group,

R^7 : an arbitrary group,

R^8 : an arbitrary group, and

R^9 : an aromatic group,

chemical formula (III):



R^{10} : a group containing Si, a group containing P, a group containing S, a halogenated hydrocarbon group or a group containing an ether linkage (where, structural units having these groups may be present together in a molecule.)

R^{11} : an arbitrary group,

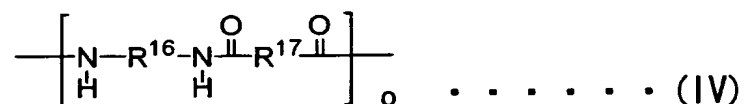
R^{12} : an arbitrary group,

R^{13} : linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component,

R^{14} : linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component, and

R^{15} : an aromatic group,

chemical formula (IV):



R¹⁶: an aromatic group, and

R¹⁷: an aromatic group.

24. The polyamide film according to claim 23, wherein a thickness of said film is in a range of 0.01 to 1,000μm.

25. The polyamide film according to claim 24, wherein light transmittances of all lights with wavelengths of from 450 nm to 700 nm of said film are 80 % or more, and a thickness of said film is in a range of 1μm to 100μm.

26. The polyamide film according to any of claims 23 to 25, wherein a light transmittance for a light with a wavelength of 400 nm of said film is 60 % or more.

27. The polyamide film according to any of claims 23 to 26, wherein a Young's modulus in at least one direction of said film is 4 GPa or more.

28. The polyamide film according to any of claims 23 to 27, wherein a thermal shrinkage in at least one direction of said film at a heat treatment condition of 200°C and 30 minutes is 1 % or less.

29. The polyamide film according to any of claims 23 to 28, wherein a refractive index in at least one direction at a sodium D ray of said film is 1.6 or more.

30. The polyamide film according to any of claims 23 to 29, wherein a retardation of a light with a wavelength of 550 nm of said film is 0 nm or more and less than 10

nm.

31. The polyamide film according to any of claims 23 to 29, wherein a retardation of a light with a wavelength of 550 nm of said film is 10 nm or more and 2,000 nm or less.

32. The polyamide film according to any of claims 23 to 31, wherein, when a retardation of a light with a wavelength of 550 nm of said film is referred to as $R(550)$ and a retardation of a light with a wavelength of 450 nm of said film is referred to as $R(450)$, said film satisfies $R(450) < R(550)$.

33. The polyamide film according to any of claims 23 to 32, wherein a birefringence of a light with a wavelength of 550 nm of said film is 0 or more and less than 0.1.

34. The polyamide film according to any of claims 23 to 32, wherein a birefringence of a light with a wavelength of 550 nm of said film is 0.1 or more and less than 0.5.

35. The polyamide film according to any of claims 23 to 34, wherein said polyamide is aromatic.

36. A copolymer containing a polyamide having at least an alicyclic or aromatic group exhibiting a light transmittance of 80 % or more for all lights with wavelengths of from 450 nm to 700 nm at a content of 50 wt% or more.

37. A polyamide film containing a polyamide at a content of 50 wt% or more, said polyamide comprising a structural unit represented by the following chemical

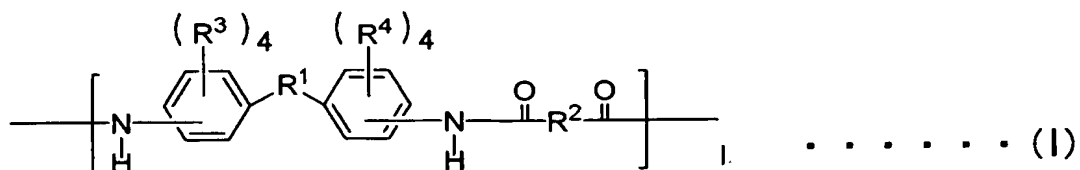
formula (I), (II), (III) or (IV) and satisfying the following equations (1) to (3) when molar fractions of structural units represented by the following chemical formulae (I), (II), (III) and (IV) are referred to as "l", "m", "n" and "o", respectively:

$$50 < l + m + n \leq 100 \quad \cdot \cdot \cdot (1)$$

$$0 \leq l, m, n, o \leq 100 \quad \cdot \cdot \cdot (2)$$

$$0 \leq o \leq 50 \quad \cdot \cdot \cdot (3)$$

chemical formula (I):



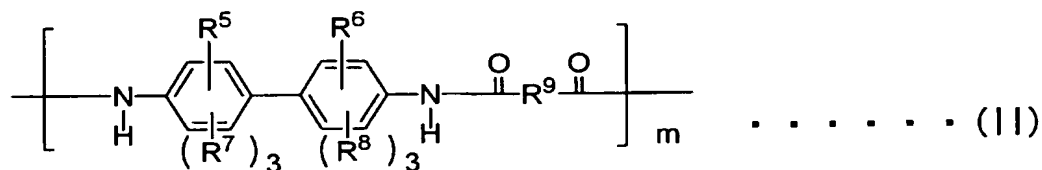
R¹: a group having at least a ring structure,

R²: an aromatic group,

R³: an arbitrary group, and

R⁴: an arbitrary group,

chemical formula (II):



R⁵: an electron-withdrawing group,

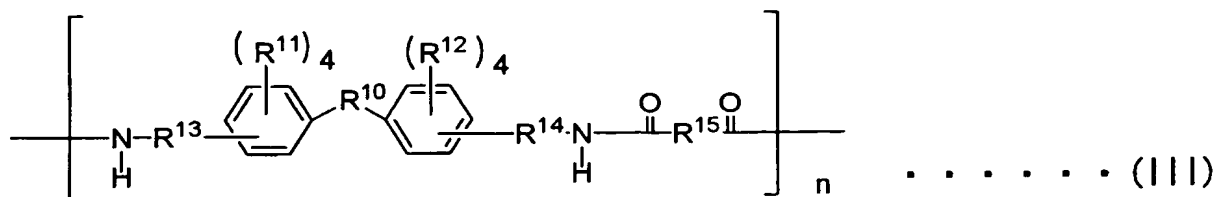
R⁶: an electron-withdrawing group,

R⁷: an arbitrary group,

R⁸: an arbitrary group, and

R⁹: an aromatic group,

chemical formula (III):



R¹⁰: a group containing Si, a group containing P, a group containing S, a halogenated hydrocarbon group or a group containing an ether linkage (where, structural units having these groups may be present together in a molecule.)

R¹¹: an arbitrary group,

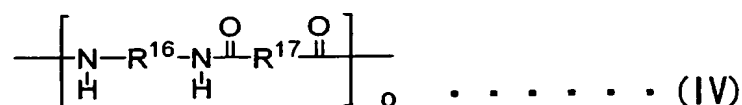
R¹²: an arbitrary group,

R¹³: linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component,

R¹⁴: linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component, and

R¹⁵: an aromatic group,

chemical formula (IV):



R¹⁶: an aromatic group, and

R¹⁷: an aromatic group.

38. An optical member using a polyamide having at least an alicyclic or aromatic group exhibiting a light transmittance of 80 % or more for all lights with wavelengths of from 450 nm to 700 nm, or a polyamide film comprising said polyamide.

39. The optical member according to claim 38, wherein said member is a substrate for a flat panel display.

40. The optical member according to claim 38, wherein said member is a substrate for a solar battery.

41. The optical member according to claim 38, wherein said member is an antireflection membrane.

42. The optical member according to claim 38, wherein said member is a retardation film.

43. The optical member according to claim 38, wherein said member is a touch panel.

44. The optical member according to claim 38, wherein said member is an optical fiber.

45. The optical member according to claim 38, wherein said member is an optical waveguide.

46. The optical member according to claim 38, wherein said member is a lens.

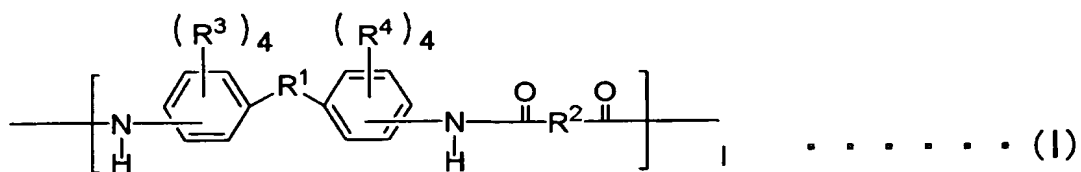
47. An optical member using a polyamide or a polyamide film comprising said polyamide, said polyamide comprising a structural unit represented by the following chemical formula (I), (II), (III) or (IV) and satisfying the following equations (1) to (3) when molar fractions of structural units represented by the following chemical formulae (I), (II), (III) and (IV) are referred to as "l", "m", "n" and "o", respectively:

$$50 < l + m + n \leq 100 \quad \cdot \cdot \cdot (1)$$

$$0 \leq l, m, n, o \leq 100 \quad \cdot \cdot \cdot (2)$$

$$0 \leq o \leq 50 \quad \cdot \cdot \cdot (3)$$

chemical formula (I):



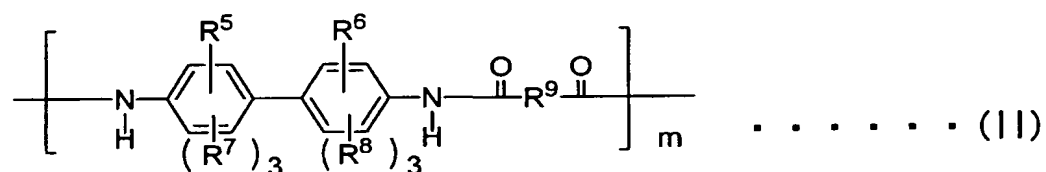
R^1 : a group having at least a ring structure,

R^2 : an aromatic group,

R^3 : an arbitrary group, and

R^4 : an arbitrary group,

chemical formula (II):



R^5 : an electron-withdrawing group,

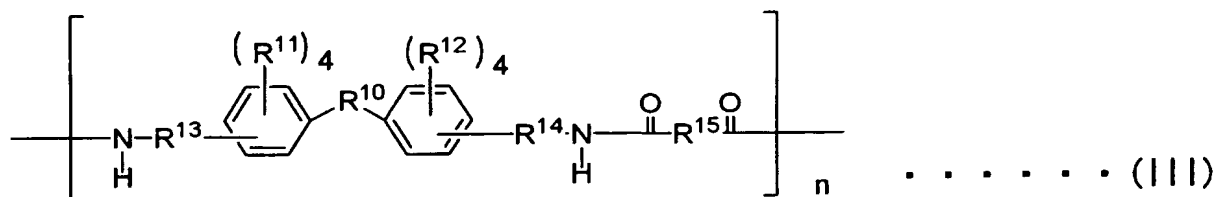
R^6 : an electron-withdrawing group,

R^7 : an arbitrary group,

R^8 : an arbitrary group, and

R^9 : an aromatic group,

chemical formula (III):



R^{10} : a group containing Si, a group containing P, a group containing S, a halogenated hydrocarbon group or a group containing an ether linkage (where, structural units having these groups may be present together in a molecule.)

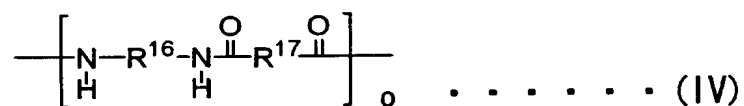
R^{11} : an arbitrary group,

R^{12} : an arbitrary group,

R¹³: linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component,

R¹⁴: linked directly or a group having a carbon number of 6 to 12 which has at least a phenyl group as an inevitable component, and

R¹⁵: an aromatic group,
chemical formula (IV):



R¹⁶: an aromatic group, and

R¹⁷: an aromatic group.

48. The optical member according to claim 47, wherein said member is a substrate for a flat panel display.

49. The optical member according to claim 47, wherein said member is a substrate for a solar battery.

50. The optical member according to claim 47, wherein said member is an antireflection membrane.

51. The optical member according to claim 47, wherein said member is a retardation film.

52. The optical member according to claim 47, wherein said member is a touch panel.

53. The optical member according to claim 47, wherein said member is an optical fiber.

54. The optical member according to claim 47, wherein said member is an optical waveguide.

55. The optical member according to claim 47, wherein said member is a lens.